A Study Testing the Combination of Dasatinib or Imatinib to Chemotherapy Treatment With Blinatumomab for Children, Adolescents, and Young Adults With Philadelphia Chromosome Positive (Ph+) or ABL-Class Philadelphia Chromosome-Like (Ph-Like) B-cell Acute Lymphoblastic Leukemia (B-ALL)

Status: RECRUITING

Eligibility Criteria

Age: 366 days to 46 years old

This study is NOT accepting healthy

Healthy Volunteers: volunteers

Inclusion Criteria:

* Patients must be \> 365 days and \< 18 years (for AIEOP-BFM), \> 365 days and \< 22 years (for Children's Oncology Group \[COG\]) and \> 365 days and \< 46 years (for ALLTogether sites) at the time of enrollment * Newly-diagnosed Ph+ or ABL-class Ph-like B-ALL. Leukemic blasts must express CD19. ABL-class fusions are defined as rearrangements involving the following genes predicted to be sensitive to imatinib and/or dasatinib: ABL1, ABL2, CSF1R, and PDGFRB * Evidence of BCR::ABL1 should be documented by a clinically-validated assay prior to study entry on day 15 from the first dose of vinCRIStine during Induction therapy. ABL-class Ph-like B-ALL gene rearrangements should be documented by a clinically-validated assay and enrolled on study by day 1 of Blinatumomab Block 1. Accepted methods of detection include fluorescence in situ hybridization (FISH) using break-apart of colocalization signal probes, singleplex or multiplex reverse-transcription polymerase chain reaction (RT-PCR), whole-transcriptome or panel-based ribonucleic acid (RNA) sequencing (e.g., Hematologic Cancer Fusion Analysis, TruSight RNA Pan-Cancer Panel or equivalent). Confirmation of 5' fusion partner genes is not required for study enrollment * Patients with Ph+ B-ALL must have previously started Induction therapy, which includes vinCRIStine, a corticosteroid, pegaspargase or calaspargase pegol, with or without anthracycline, and/or other standard cytotoxic chemotherapy * Patients with Ph+ B-ALL have not received more than 14 days of systemic Induction therapy beginning with the first Induction dose of vinCRIStine * Patients with ABL-class Ph-like B-ALL must have previously completed 4 or 5 weeks of multiagent Induction chemotherapy (Induction 1A) * Patients may have started either imatinib or dasatinib prior to study entry but should have received no more than 14 days of TKI for Ph+ B-ALL or no more than 35 days of TKI for ABL-class Ph-like B-ALL * Patients must have a performance status corresponding to Eastern Cooperative Oncology Group (ECOG) scores of ≤ 2 or Karnofsky and Lansky performance scores ≥ 50%. Use Karnofsky for patients \> 16 years of age and Lansky for patients ≤ 16 years of age * For pediatric patients (age 1-17 years): a glomerular filtration rate (GFR) ≥ 50 mL/min/1.73 m\^2, as determined by one of the following methods (must be performed within 7 days prior to enrollment unless otherwise indicated): * Estimated GFR (eGFR) ≥ 50 mL/min/1.73 m2 * Measured GFR ≥ 50 mL/min/1.73 m\^2 (any age). If measured GFR is used, it must be performed using direct measurement with a nuclear blood sampling method or small molecule clearance method (iothalamate or other molecule per institutional standard * For adult patients (age 18 years or older): Creatinine clearance ≥ 30 mL/min, as estimated by the Cockcroft and Gault formula. The creatinine value used in the calculation must have been obtained within 28 days prior to registration. Estimated creatinine clearance is based on body weight * Direct bilirubin \< 2.0 mg/dL (34.2 micromoles/L) (must be performed within 7 days prior to enrollment unless otherwise indicated) * Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) ≤ 10 x upper limit of normal (ULN) (must be performed within 7 days prior to enrollment unless otherwise indicated) * * Shortening fraction of ≥ 27% by echocardiogram (must be obtained within 21 days prior to enrollment and start of protocol therapy \[repeat if necessary\]) OR * Left Ventricular Ejection fraction of ≥ 50% by radionuclide angiogram or echocardiogram (must be obtained within 21 days prior to enrollment and start of protocol therapy \[repeat if necessary\]) AND * Corrected QT Interval, QTc \< 480mSec (must be obtained within 21 days prior to enrollment and start of protocol therapy \[repeat if necessary\]) * Note: Repeat echocardiogram and electrocardiogram are not required if they were performed at or after initial ALL diagnosis before study enrollment

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Exclusion Criteria:

* Known history of chronic myeloid leukemia (CML) * ABL-class Ph-like B-ALL who are CNS2 or CNS3 at end of Induction phase * ALL developing after a previous cancer treated with cytotoxic chemotherapy * Active, uncontrolled infection or active systemic illness that requires ongoing vasopressor support or mechanical ventilation * Down syndrome (trisomy 21) * Pregnancy and breast feeding * Female patients who are pregnant since fetal toxicities and teratogenic effects have been noted for several of the study drugs. A negative pregnancy test is required for female patients of childbearing potential within 7 days prior to enrollment * Lactating females who plan to breastfeed their infants * Sexually active male and female patients of reproductive potential who have not agreed to use an effective contraception method for the duration of treatment according to protocol * NOTE: Patients who could become pregnant or could father a child must use effective contraception during protocol treatment and for 30 days after the last dose of dasatinib or 14 days after the last dose of imatinib dose or per institutional standard of care for multiagent chemotherapy, whichever is longer * Prior treatment with TKIs before study entry with the exception of imatinib or dasatinib * Patients with congenital long QT syndrome, history of ventricular arrhythmias, or heart block * Patients with known Charcot-Marie-Tooth disease * Patients with significant central nervous system pathology that would preclude treatment with blinatumomab, including history of severe neurologic disorder or autoimmune disease with central nervous system (CNS) involvement * Note: Patients with a history of seizures that are well controlled on stable doses of anti-epileptic drugs are eligible. Patients with a history of cerebrovascular ischemia/hemorrhage with residual deficits are not eligible. Patients with a history of cerebrovascular ischemia/hemorrhage remain eligible provided all neurologic deficits have resolved * HIV-infected patients are eligible if on effective anti-retroviral therapy that does not interact with planned study agents and with undetectable viral load within 6 months of treatment * All patients and/or their parents or legal guardians must sign a written informed consent * All institutional, Food and Drug Administration (FDA), and National Cancer Institute (NCI) requirements for human studies must be met

Conditions & Interventions

Interventions:

PROCEDURE: Biospecimen Collection, BIOLOGICAL: Blinatumomab, PROCEDURE: Bone Marrow Biopsy, DRUG: Calaspargase Pegol, DRUG: Cyclophosphamide, DRUG: Cytarabine, DRUG: Dasatinib, DRUG: Daunorubicin, DRUG: Doxorubicin, PROCEDURE: Echocardiography Test, DRUG: Imatinib, DRUG: Leucovorin, DRUG: Mercaptopurine, DRUG: Methotrexate, PROCEDURE: Multigated Acquisition Scan, DRUG: Pegaspargase, DRUG: Prednisolone, DRUG: Prednisone, RADIATION: Radiation Therapy, DRUG: Thioguanine, DRUG: Vincristine

Conditions:

B Acute Lymphoblastic Leukemia

More Information

Contact(s): ctrrecruit@vcu.edu

Principal Investigator:

Phase: PHASE3

IRB

Number

Number:
System ID: NCT06124157

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